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HARRITY SNYDER, LLP 11350 Random Hills Road SUITE 600 FAIRFAX, VA 22030			EXAMINER HO, CHUONG T	
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SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No. 09/354,640	Applicant(s) GAN ET AL.	
	Examiner CHUONG T. HO	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on appeal brief 12/27/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 8-21 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 8-21, 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. Applicant's arguments filed 12/27/06 with respect to claims 1-4, 6, 8-21, 24 have been considered but are moot in view of the new ground(s) of rejection.
2. Claims 1-4, 6, 8-21, 24 are pending.
3. In view of the Appeal Brief filed on 05/08/06, PROSECUTION IS HEREBY REOPENED. The new rejection set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haskin et al. (U.S. Patent No. 6,813,242) in view of McAllister et al. (U.S. Patent No. 6,560,218 B2).

In the claim 1, see figures 2, 3, Haskin et al. discloses a network system including of network element including a plurality of nodes (switches 1-7) and connecting links, the plurality of nodes including at least one alternative-route-enabled node (switch 1) and at least one non-alternative-route-enabled node (switch 3 or 5), wherein the at least one-non-alternative-route-enabled node (switch 3 or 5) comprises: a mechanism to detect failure in a downstream network element in the initial route; and a forwarding to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node (switch 1), the failure message causing the alternative-route-enabled node (switch 1) to begin forwarding packets on an alternative route (see col. 3, lines 20-22, col. 4, lines 35-40, col. 2, lines 35-45).

However, Haskin et al. is silent to disclosing a storage space to store an initial route from the source device to the destination.

McAllister et al. (6,560,218) disclose a storage space to store an initial route from the source device (see figure 1, User 1) to the destination (see figure 1, User 2) (see col. 2, lines 30-34, each network node having a local static routing table providing next hop routing information to adjacent nodes, characterized in that said routing tables define a primary route and an alternative route to adjacent nodes) (see col. 2, lines 38-45, if the primary route is not usable due to congestion or physical failure, the node then attempts to forward the setup message on the alternative route; and if the alternative

route is the same route on which the setup message is received, the node crankback the call back to a preceding node which either forwards the setup message over the alternative route defined in the node's routing table or again cranks the call back to a further preceding node);

Both McAllister and Haskin discloses a system of fast alternative-path automatic rerouting of labeled data packets normally routed over a predetermined primary label switched path upon failure. McAllister recognizes a storage space to store an initial route from the source device to the destination. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Haskin with the teaching of McAllister to provide a storage space to store an initial route from the source device to the destination in order to reduce the probability of packet loss in a network.

6. In the claim 24, see figures 2, 3, Haskin et al. discloses a network for forwarding packets from a source device (source 1) to a destination device (destination 7) and including of network element including a plurality of nodes (switches 2, 3, 4, 5, 6), the plurality of intermediate network nodes (switches 2, 3, 4, 5, 6) comprising: at least one first node (node 1) configured to: detect a failure in a downstream node in the initial route, and automatically forward a packet to a node on one of the at least one alternative route in response to detect the failure (see col. 3, lines 20-22, col. 4, lines 35-40, col. 2, lines 35-45);

At least one second node (switch 5) configured to detect a failure in a downstream network node in the initial route, and forward a failure message to an upstream first

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node (switch 1) in response to detecting the failure, the failure message causing the upstream first node to automatically forward a packet to a node of the at least one alternative route (see col. 3, lines 20-22, col. 4, lines 35-40, col. 2, lines 35-45).

However, Haskin et al. are silent to disclosing at least one first node configured to: store an initial route from the source device to the destination device and at least one alternative route from the source device to the destination device; and at least one second node configured to: store the initial route .

McAllister et al. disclose at least one first node (node A) configured to: (route table 11) store an initial route from the source device to the destination device and at least one alternative route from the source device to the destination device; and at least one second node (node B) configured to: store the initial route (route table 11) (see col. 3, lines 1-2)

Both McAllister and Haskin discloses a system of fast alternative-path automatic rerouting of labeled data packets normally routed over a predetermined primary label switched path upon failure. McAllister recognizes a storage space to store an initial route from the source device to the destination. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Haskin with the teaching of McAllister to include at least one first node configured to: store an initial route from the source device to the destination device and at least one alternative route from the source device to the destination device; and at least one second node configured to: store the initial route in order to reduce the probability of packet loss in a network.

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7. In the claim 4, Haskin et al. disclose the alternative route does not include the downstream network element in the initial route (col. 2, lines 35-40, setting up an alternative label switched path segment between said source ingress and destination egress end switches of the primary path, separate from the primary path and sharing no link or switching entity of the primary path apart from the ingress and egress end switches.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Haskin – McAllister) in view of Goyal et al. (U.S. Patent No. 6,466,985 B1).

In the claim 2, the combined system (Haskin – McAllister) discloses the limitations of claim 1 above.

However, the combined system (Haskin – McAllister) is silent to disclosing a connection oriented network with a plurality of established initial routes.

Goyal et al. discloses a connection oriented network with a plurality of established initial routes (see figure 1, In view of the foregoing, it can be appreciated that a substantial need exists for introducing the QoS advantages of connection-oriented networks into

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connectionless networks (e.g., using IP) without losing the advantages given by connectionless networks).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Haskin – McAllister) with the teaching of Goyal to provide a connection oriented network with a plurality of established initial routes in order to provide quality of service advantages of connection-oriented networks.

10. In the claim 3, the combined system (Haskin – McAllister) discloses the limitations of claim 1 above.

However, the combined system (Haskin – McAllister) is silent to disclosing the plurality of nodes includes a label switched router.

Goyal et al. discloses the plurality of nodes includes a label switched router (There are four aspects of constructing a flow: (1) declaring a name; (2) pinning the route, (3) enabling reverse path routing, and (4) assigning attributes (such as QoS). Abstractly, current network nodes maintain two tables, a routing table and a forwarding table. In the case of a traditional router the forwarding table corresponds to the routing cache. On an ATM switch or an MPLS Label Switch Router (LSR), the forwarding table is respectively the Virtual Channel (VC) lookup table or the label lookup table. To support the flows used in the embodiments of the invention, a traditional router would be augmented with an additional forwarding table for mapping flow names to flow state (including the output port), as discussed in more detail with reference to FIG. 2).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Haskin – McAllister) with the teaching of Goyal to provide the plurality of nodes includes a label switched router in order to provide quality of service advantages of connection-oriented networks.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Haskin – McAllister) in view of Gnauck et al. (H2075 H).

In the claim 6, the combined system (Haskin – McAllister) disclose the limitations of claim 1 above.

However, the combined system (Haskin – McAllister) are silent to disclosing the mechanism to detect failure sends communication packets to downstream nodes at regular intervals.

Gnauck et al. (H2075 H) discloses the mechanism to detect failure sends communication packets to downstream nodes at regular intervals (see col. 14, lines 62-65, Electronics 1370 are adapted to detect a failure in the connection between ONU

1300 and the COT that includes the optical fiber selected by optical switch 1317. For example, the COT could send a predetermined signal to ONU 1300 at regular intervals.)

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Haskin – McAllister) with Gnauck to provide the mechanism to detect failure sends communication packets to downstream nodes at regular intervals in order to find an alternative route with sufficient quality of service characteristic in the event of a network failure.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haskin et al. (U.S. Patent No. 6,813,242 B1) in view of Hsing et al. (6,167,025).

In the claim 8, Haskin et al. discloses a system for forwarding packets from a source device to a destination device in network interconnected elements include nodes (2,3,4,5,6) and links, comprising: determining an initial route, the initial route including at least one alternative route enable node (5) and at least one alternative route enable node; detecting a failed element; and automatically forward packets on the alternative

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route without communicating with either the source or the destination (see col. 3, lines 20-22, col. 4, lines 35-40, col. 2, lines 35-45).

However, Haskin et al. is silent to disclosing the at least one non alternative route enabled node storing an initial route from the source to the destination device; determining an alternative route by identifying the at least one alternative route enable node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative route enable node and the identified downstream interconnected elements; forwarding packets on the initial route.

Hsing et al. discloses the at least one non alternative route enabled node (figures 12, 3A, 3B, 3C, figure 16) storing an initial route from the source to the destination device; determining an alternative route by identifying the at least one alternative route enable node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative route enable node and the identified downstream interconnected elements; forwarding packets on the initial route (col.14, lines 33-43, The action taken by the switch 200 detecting a fault is a function of whether the switch is located upstream to a fault in which case the switch is an upstream neighboring switch or downstream in which case the switch is a downstream neighboring switch. Upstream neighboring switches are generally responsible for initiating the process of establishing an alternative path to the destination device while downstream neighboring switches are generally responsible for initiating the release of network capacity reserved by switches which are no longer used

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as part of the path to communicate information between the source and destination devices.).

Both Haskin and Hsing disclose a system of fast alternative-path automatic rerouting of labeled data packets normally routed over a predetermined primary label switched path upon failure. Hsing recognizes the at least one non alternative route enabled node storing an initial route from the source to the destination device; determining an alternative route by identifying the at least one alternative route enable node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative route enable node and the identified downstream interconnected elements; forwarding packets on the initial route. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Haskin with the teaching of Hsing to provide the at least one non alternative route enabled node storing an initial route from the source to the destination device; determining an alternative route by identifying the at least one alternative route enable node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative route enable node and the identified downstream interconnected elements; forwarding packets on the initial route in order to reduce the probability of packet loss in a network.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Haskin – Hsing) in view of Saleh (7,002,917).

In the claim 9, the combined system (Haskin – McAllister) discloses the limitations of claim 8 above.

However, the combined system (Haskin – Hsing) is silent to disclosing determining the initial route further comprises: determining a short path from the destination device to the source device within the network; refining the path according to the administrative constraints; and establishing the path as the initial route.

Saleh discloses determining the initial route further comprises: determining a short path (col. 27, lines 1-30, shortest path first) from the destination device to the source device within the network; refining the path according to the administrative constraints (abstract, mini hops, mini costs “bandwidth”); and establishing the path as the initial route (col. 27, lines 1-30).

Thus, it would have been obvious to one of ordinary skill in the art at time of the invention to modify the combined system (Haskin – Hsing) with the teaching of Saleh to determine the initial route further comprises: determining a short path from the destination device to the source device within the network; refining the path according to the administrative constraints; and establishing the path as the initial route in order to

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find an alternative route with sufficient quality of service characteristic in the event of a network failure.

17. In the claim 10, Saleh discloses wherein refining the path comprising rejecting the path exceeding bandwidth allocation and hop limit (see abstract, mini hops, mini cost "bandwidth") (col. 27, lines 1-30).

18. In the claim 11, Haskin disclose refining the alternate route to exclude the failed element on the initial router (see col. 2, lines 38-40).

However, Haskin is silent to disclosing determining a shortest path from a node preceding the failed element to the destination device within the network.

Saleh discloses determining the alternative route (col. 2, lines 65-67) further comprises determining a shortest path (col. 27, lines 1-30) from a node preceding the failed element to the destination device within the network; establishing the alternative route for forwarding packets (col. 27, lines 1-30).

Thus, it would have been obvious to one of ordinary skill in the art at time of the invention to modify the combined system (Haskin – McAllister) with the teaching of Saleh to determine a shortest path from a node preceding the failed element to the destination device within the network in order to find an alternative route with sufficient quality of service characteristic in the event of a network failure.

19. In the claim 12, Haskin discloses detecting a failure is conducted locally by a node (switch 5) preceding the failed element (switch 7) without requiring notification of a master server or an ingress node (see col. 3, lines 15-20).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 13, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Haskin – Hsing) in view of Hahne et al. (6,538,416).

In the claim 13, the combined system (Haskin – Hsing) discloses the limitations of claim 8 above.

However, the combined system (Haskin – Hsing) is silent to disclosing reserving bandwidth available on the initial route; generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element; and establishing the alternative route.

Hahne et al. discloses disclosing reserving bandwidth available on the initial route (Assume that router S.sub.2 desires to set-up a reservation having bandwidth BW.sub.2,5 from the source hosts H.sub.2 in the domain AS2 to the destination hosts H.sub.5 in AS.sub.5.); generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element; and establishing the alternative route (col. 11, lines 58-65, detecting any failed routers in the established communication paths; and g) if any failed routers are detected in the step f); h) discovering alternate partial communication paths including alternate routers for bypassing the respective failed routers; and i) establishing alternate reservation bandwidths on the alternate paths.).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (McAllister – Saleh) with the teaching of Hahne to identifying a plurality of nodes associated with the failed node according configuration information; generating the alternative route excluding the failed node and the plurality of nodes; and establishing the alternative route in order to rerouting of labeled data packet upon failure or congestion in the primary path.

21. In the claim 17, the combined system (Haskin – Hsing) discloses the limitations of claim 8 above.

However, the combined system (Haskin – Hsing) is silent to disclosing reserving bandwidth available on the initial route; generating the alternative route by invoking a routing protocol; refining the alterantive route by excluding the failed element; and establishing the alternative route.

Hahne et al. discloses disclosing reserving bandwidth available on the initial route (Assume that router S.sub.2 desires to set-up a reservation having bandwidth BW.sub.2,5 from the source hosts H.sub.2 in the domain AS2 to the destination hosts H.sub.5 in AS.sub.5.); generating the alternative route by invoking a routing protocol; refining the alterantive route by excluding the failed element; and establishing the alternative route (col. 11, lines 58-65, detecting any failed routers in the established communication paths; and g) if any failed routers are detected in the step f): h) discovering alternate partial communication paths including alternate routers for by-passing the respective failed routers; and i) establishing alternate reservation bandwidths on the alternate paths.).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (McAllister – Saleh) with the teaching of Hahne to identifying a plurality of nodes associated with the failed node according configuration information; generating the alternative route excluding the failed node and the plurality of nodes; and establishing the alternative route in order to rerouting of labeled data packet upon failure or congestion in the primary path.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claim 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Haskin – Hsing) in view of Vikberg (U.S. Patent No. 20030053463 A1).

In the claim 15, the combined system (Haskin – Hsing) disclose the limitations of claim 8 above.

However, the combined system (Haskin – Hsing) is silent to disclosing the determining bandwidth allocation comprises check bandwidth allocation.

Vikberg discloses the determining bandwidth allocation comprises check bandwidth allocation (see figure 15, method for allocating bandwidth in a broadband network having a plurality of connection control nodes having broadband switching fabric and at least one call control node having switching intelligence and narrowband switching

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fabric, said plurality of connection control nodes being controlled by said at least one call control node, said plurality of connection control nodes being interconnected by a plurality of paths, said method comprising the steps of: maintaining bandwidth data identifying an amount of available bandwidth on at least one of a plurality of paths; maintaining quality data related to the quality of packet transmissions on said at least one path; selecting at least one of said paths for switching an incoming call through said broadband network using said bandwidth data and said quality data; updating said quality data for each of said plurality of paths during said incoming call; and selecting at least one alternative path for said incoming call based on said updated quality data and said bandwidth data).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Haskin – Hsing) with the teaching of Vikberg to determine bandwidth allocation comprises check bandwidth allocation in order to monitor congestion in the network and to allocate bandwidth more efficiently.

23. In the claim 16, Vikberg discloses wherein checking bandwidth allocation comprises dynamically balancing capacity (loads) of nodes and links (FIG. 17 illustrates exemplary steps for performing load balancing in the broadband network using bandwidth allocation data in accordance with embodiments of the present invention;).

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

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subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haskin et al. (U.S. Patent No. 6,813,242 B1) in view of Saleh (U.S. Patent No. 7,002,917 B1).

In the claim 14, Haskin discloses a system for forwarding packets from a source device to a destination device in a network of interconnected element (switches 2,3,4,5) including nodes and links, comprising:

Establishing the path as the initial route, determining an alternative route; forwarding packets on the initial route; detecting a failed element; and automatically forwarding packets on the alternative route without communicating with either the source or the destination route (see col. 2, lines 35-45, col. 3, lines 15-22).

However, Haskin is silent to disclosing determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic.

Saleh discloses determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints (mini hop, mini costs) and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic (see col. 2, lines 65-67, a method for finding an alternate route with

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sufficient quality of service characteristics in the event of a network failure that is fast and efficient must be provided to enable such quick restoration) (see col. 27, lines 1-30, table 9A, table 9B, Paths are computed using what is referred to herein as a QoS based shortest path first (QSPF) technique).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Haskin with the teaching of Saleh to provide determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic in order to select routing paths through networks.

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

27. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over McAllister (6,560,218) in view of Saleh (7002917).

28. In the claim 18, McAllister discloses a system for locally rerouting packets traveling on an established route when a node (see figure 1, node B) (figure 2, node C)

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in a network of interconnected nodes (figure 1, nodes A, B, C) (figure 2, nodes A, B, C, D) fails, the system comprising:

- Storing, at each of the select intermediary nodes (figure 1, nodes B, A), the alternative route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12);
- Determining locally that the established route has failed (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12); and automatically forwarding packets on the alternative route (see col. 2, lines 30-34, lines 38-45, col. 3, lines 11-17, lines 20-24, col. 4, lines 6-12).

However, McAllister is silent to disclosing computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary nodes to the destination device of the established route.

Saleh discloses computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary nodes to the destination device of the established route (see col. 2, lines 65-67, a method for finding an alternate route with sufficient quality of service characteristics in the event of a network failure that is fast and efficient must be provided to enable such quick restoration) (see col. 27, lines 1-30, table 9A, table 9B, Paths are computed using what is referred to herein as a QoS based shorted path first (QSPF) technique).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of McAllister with the teaching of Saleh to compute, at select intermediary nodes along the established route, an alternative route leading

from the select intermediary nodes to the destination device of the established route in order to select routing paths through networks.

Claim Rejections - 35 USC § 103

29. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

30. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (McAllister – Saleh) in view of Hahne et al. (6,538,416).

In the claim 19, Saleh discloses computing the alternative route (col. 2, lines 65-67) comprising: reserving bandwidth available on the established route (Furthermore, it should be noted that a QoS VP is allowed to use any bandwidth reserved for QoS levels 0 through n. Table 13 describes the fields that appear first in the Hello packet. These fields appear only once.).

However, the combined system (McAllister – Saleh) is silent to disclosing identifying a plurality of nodes associated with the failed node according configuration information; generating the alternative route excluding the failed node and the plurality of nodes; and establishing the alternative route.

Hahne et al. discloses disclosing identifying a plurality of nodes associated with the failed node according configuration information; generating the alternative route

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excluding the failed node and the plurality of nodes; and establishing the alternative route (col. 11, lines 58-65, detecting any failed routers in the established communication paths; and g) if any failed routers are detected in the step f); h) discovering alternate partial communication paths including alternate routers for by-passing the respective failed routers; and i) establishing alternate reservation bandwidths on the alternate paths.).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (McAllister – Saleh) with the teaching of Hahne to identifying a plurality of nodes associated with the failed node according configuration information; generating the alternative route excluding the failed node and the plurality of nodes; and establishing the alternative route in order to rerouting of labeled data packet upon failure or congestion in the primary path.

Claim Rejections - 35 USC § 103

31. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

32. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (McAllister – Saleh – Hahne) in view of Azuma (6,430,150 B1).

In the claim 20, Saleh discloses wherein computing the alternative route further comprises: locating a set of established routes with a same destination device and

same administrative constraints as the established route (see abstract, mini hops, mini costs, col. 27, lines 1-30).

However, the combined system (McAllister – Saleh – Hahne) is silent to disclosing finding a common node, downstream from the failed node, after which the set of established routes, and the established route utilize the same network elements; establishing a new route from the common node to the destination device; and incorporate the new route into the alternative route.

Azuma discloses finding a common node, downstream from the failed node, after which the set of established routes, and the established route utilize the same network elements; establishing a new route from the common node to the destination device; and incorporate the new route into the alternative route (col. 4, lines 51-55, A description will now be given of the computation phase. The node that receives the alarm message executes computation (topology computation) for finding alternate paths using the topology information common to the nodes and stored in the physical topology table and the logical topology table. Consistent computation results (alternate paths) are obtained at each node, because common topology information of the network and a common computation algorithm for finding alternate paths are available and used in each mode. A known algorithm such as Dijkstra's algorithm may be used in the computation.).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (McAllister – Saleh – Hahne) with the teaching of Azuma to find a common node, downstream from the failed node, after

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which the set of established routes, and the established route utilize the same network elements; establishing a new route from the common node to the destination device; and incorporate the new route into the alternative route in order to determine alternate path for bypassing the failed elements.

Claim Rejections - 35 USC § 103

33. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

34. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (McAllister – Saleh) in view of Hsing et al. (6,167,025).

In the claim 21, the combined system (McAllister – Saleh) disclose the limitations of claim 18 above.

However, the combined system (McAllister – Saleh) is silent to disclosing wherein determining locally that the established route has failed is conducted by a signal protocol

Hsing et al. discloses wherein determining locally that the established route has failed is conducted by a signal protocol (alarm indication signal) (col. 5, lines 38-43, signaling protocol).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (McAllister – Saleh) with the teaching of Hsing

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to determine locally that the established route has failed is conducted by a signal protocol in order to detect node and/or link failure.

Conclusion

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUONG T. HO whose telephone number is (571) 272-3133. The examiner can normally be reached on 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

02/22/07



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